

## Response to the Office Action

Claims 23-29 are pending in the application.

The examiner had rejected previously-pending claims 1-22 under one or more of the following references:

- Parkinson, ed., Global Positioning System: Theory and Applications, vol. 1
- Legrand, "Real-time minimization of the total tracking error in phase and delay lock loops: a second approach of the fast adaptive bandwidth algorithm"
- Braff, "Derivation of ranging source integrity requirements for the Local Area Augmentation System (LAAS)."
- Loh, U.S. Patent No. 6,587,075.

Newly-presented claims 23-29 are believed to distinguish over these references and the remaining prior art of record and to be in a condition for allowance. In particular, the references relied on in the Office Action fail to teach the claimed use of a "lower confidence limit," as recited in independent claims 23 and 29. As recited in claims 23 and 29, the "lower confidence limit" is itself used in determining whether to issue an alert.

In discussing the "lower confidence limit," the examiner cited page 392 of the Parkinson disclosure, particularly the sentence following equation 116. (Office Action at 5, 6).

$$\hat{\mu}_{NP} = \frac{1}{K} \sum_{k=1}^K NP_k \quad (116)$$

**reduces the standard deviations by a factor of  $\sqrt{K}$ , and a threshold can be set at a desired minimum  $C/N_0$ .**

The Parkinson disclosure, however, refers to the use of a threshold for "a desired minimum  $C/N_0$ ," not a threshold for a lower confidence limit.


The differences between simply setting a minimum threshold and using a lower confidence limit can be understood as a matter of safety. In particular, LAAS systems are designed for, among

other things, use in guiding airplanes to a safe landing. If conditions are such that an LAAS system is providing erroneous information, the pilot should reliably be informed, so that he or she can either abort the landing or proceed while relying on different equipment. One source of potential error recognized in the present invention is a low power condition: if a signal-to-noise ratio is too low, an alert can be issued. Identifying a low-power condition, however, as the inventor has recognized, is a process that is **itself** subject to error. It would be dangerous if a pilot proceeded with landing in the mistaken belief that there was no low-power condition, when signals were in fact too weak to proceed safely. By making use of a lower confidence limit instead of (or in addition to) a bare signal-to-noise ratio, the claimed invention not only watches for a low-power condition, but it also takes into consideration the possibility that its measurement of the signal-to-noise ratio is itself flawed.

Because the prior art of record does not disclose or suggest the use of a lower confidence limit as claimed, and for the reasons given in the applicant's previous responses in this case, the applicant believes claims 23-29 are in a condition for allowance. Early notification to that effect is solicited. If the examiner has any questions or identifies any issues that can be resolved over the telephone, the Examiner is invited to contact the Applicant's representative at the number given below.

Respectfully submitted,

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